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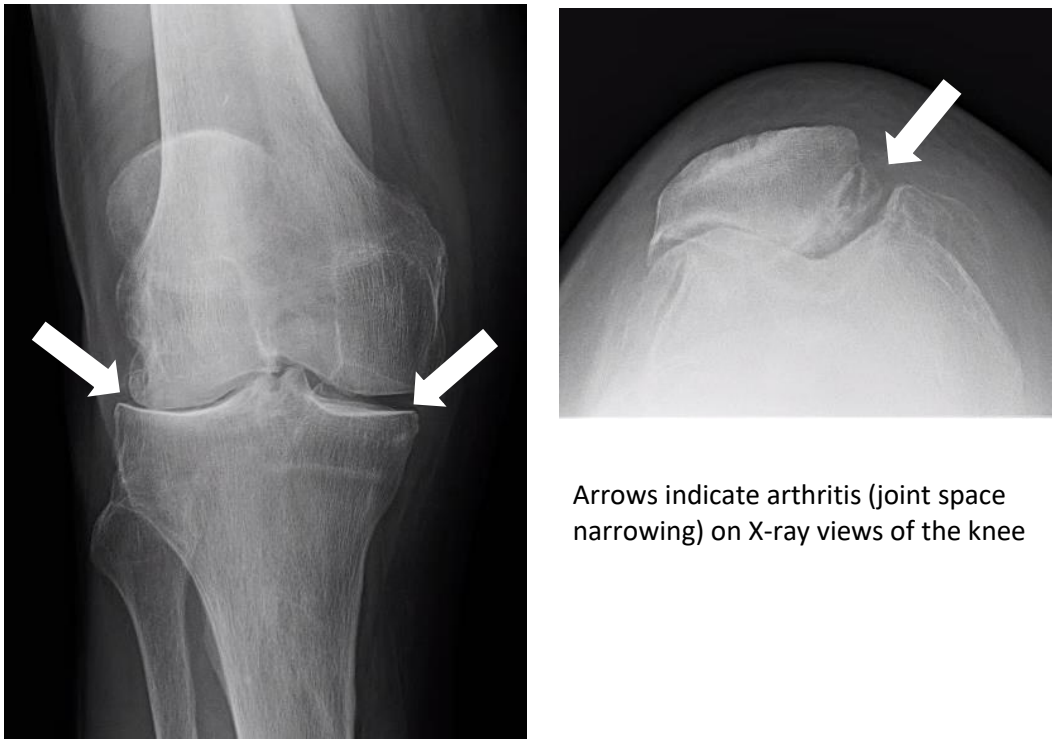
SHOULDER, KNEE & SPORTS MEDICINE

Knee Osteoarthritis (Arthritis)

Arthritis is the physical wearing away of the protective cartilage surface covering the ends of our bones at a joint. When functioning appropriately, this cartilage surface allows smooth and painless motion at our joints. As the cartilage wears out over time or after injury, the worn ends of the bones contact causing pain and sometimes crepitus (audible or palpable grinding of the bony surfaces). Arthritis symptoms generally progress over time at an unpredictable rate (months, years, decades) and can have periods of decreased or increased pain and symptoms. Arthritis is often associated with pain and stiffness with the initiation of movement after a period of prolonged rest, particularly in the morning (morning stiffness).



Arrows indicate arthritis (joint space narrowing) on X-ray views of the knee

Conservative/ Non-Operative Treatment Options

- **Activity Modification**
  It is important to **continue to use and move an arthritic knee** joint but do not to overuse it. By keeping the intensity and frequency of your activity below the level that causes joint pain and aggravation, you will feel better and get more miles out of your joints.

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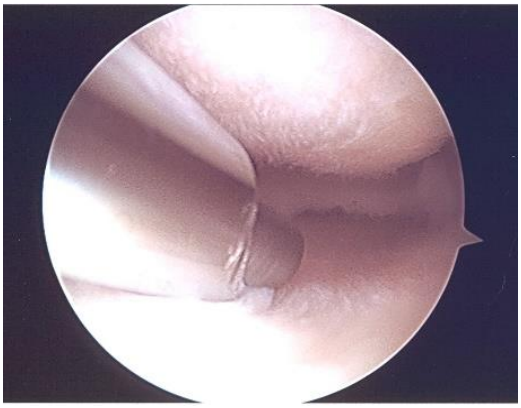
- **Gentle strengthening and stretching exercises**
  Appropriate exercises can improve the overall function of the affected knee joint and reduce pain. Again, it is important to remember to keep the intensity and frequency below the level that causes pain.
- **Non-impact activities**
  Swimming, water exercises, skating and biking can strengthen muscles, maintain joint function to provide relief and prolong the life of your joints particularly those involving weight bearing joints of the lower extremities (hip, knee, ankle, foot).
- **Weight loss**
  Proper diet and exercise can significantly improve the pain caused by arthritis. Certain activities such as simply going up stairs can place seven to10 times our body weight of force across our knee joints with each step. Even small amounts of weight loss can greatly decrease the stress at the joint. For example, a 10-pound weight loss can reduce the force seen at the knee by 100 pounds for every step.
- **Assistive devices**
  These also can be used to help reduce the forces across the joint and provide relief.
  - Knee unloader braces
  - Cane
  - Walker
- **Medications**
  Tylenol® is the most inexpensive arthritis medication. For some people, it has been shown to be as effective as other prescription arthritis medications. For average size adults, no more than **4 grams or 4000 mg of Tylenol® can be taken per day.** Tylenol Arthritis® can be purchased over-the counter and can be very effective for some individuals. Anti-inflammatory medications can be effective and obtained over-the-counter or can be prescribed by your doctor. (Aleve®, Naprosyn®, ibuprofen, Celebrex®, etc.).
- **Injections**
  Steroid Injections can reduce symptoms by decreasing inflammation in the joint. Hyaluronic acid injections (gel) administered in a series of one to three injections performed at weekly intervals can also provide relief.

Surgical Options

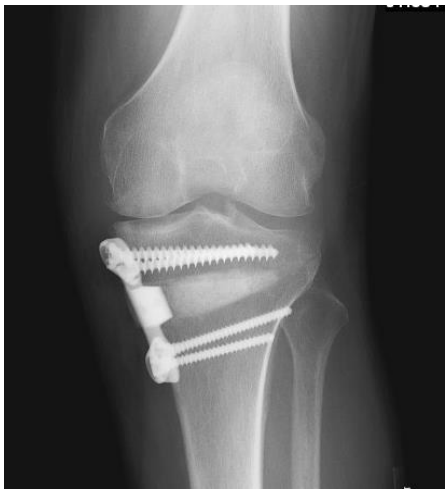
Surgery is a last resort and is appropriate for treating arthritis when all reasonable conservative measures have been exhausted and pain continues to significantly affect your quality of life.

- **Arthroscopy**
  Arthroscopy can debride (clean-up) loose ends of torn cartilage and treat focal (small and limited) breaks in the cartilage surface. Outcomes for treating arthritis, diffuse (involving most of the joint surface) cartilage damage with arthroscopic debridement are less predictable.



Arthroscopic photo of cartilage worn down to bone

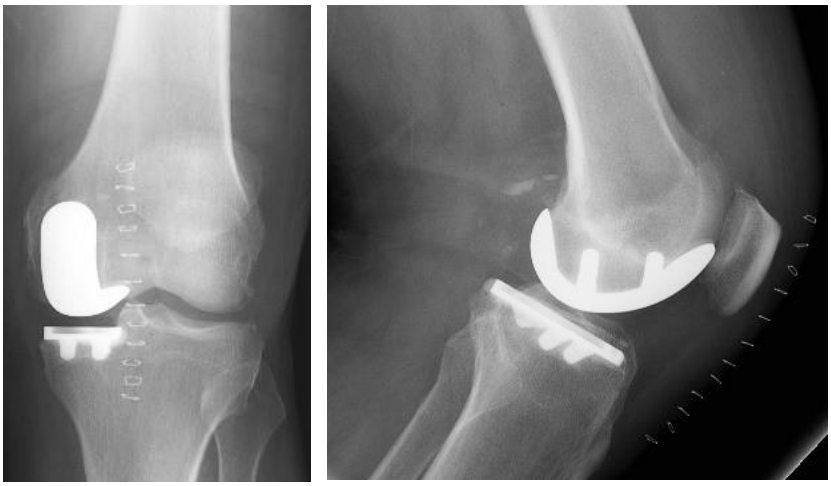
- **Osteotomy**
  Osteotomy (cutting and realigning) of the bones around the knee can help shift the load from the worn and damaged side of the knee joint to the more normal side. It is indicated in younger, not overweight individuals with arthritis limited to a portion of the knee joint and who intend to maintain higher levels of activity not otherwise appropriate with a joint



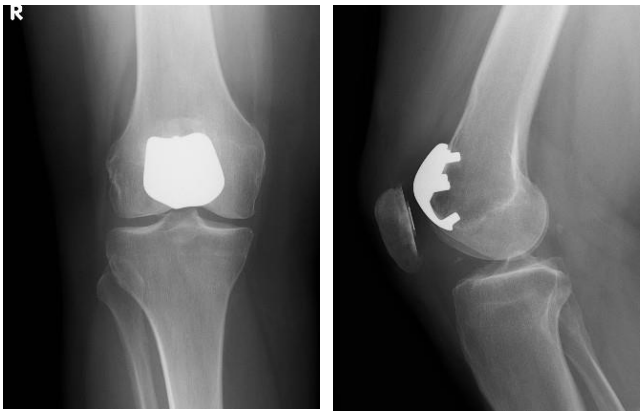
Post-operative X-ray of an osteotomy

replacement surgery. Osteotomies involve cutting, realigning, sometimes bone grafting and securing the bone with plates and screws. It also includes protected weightbearing for six weeks plus and four to six months to return to activity. If successful, patients can often expect reasonable pain relief for up to five to 10 years before the remainder of the knee develops arthritis and needs to be converted to a total knee replacement.

- **Unicompartmental Replacement**
  Unicompartmental (single compartment) knee replacement can be performed to resurface damaged and arthritic joint surfaces in any of the three different compartments of the knee



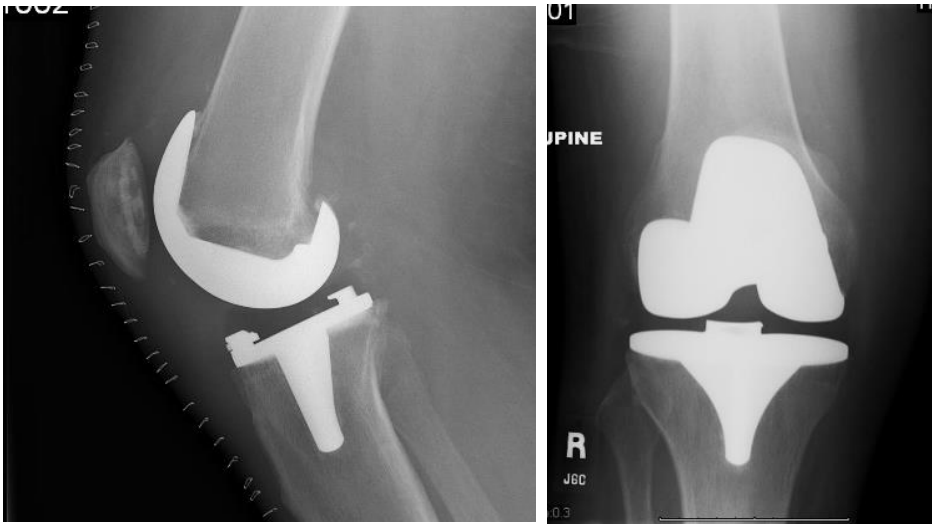
Medial compartment replacement seen on X-ray



Patellofemoral compartment replacement seen on X-ray

There is the medial tibiofemoral compartment (between the thigh bone and shin bone on the inside of the knee), the lateral tibiofemoral compartment (between the thigh bone and the shin bone on the outside of the knee), and the patellofemoral compartment (between the kneecap and the thighbone). A less invasive procedure can resurface a single compartment of the knee if the others are still in good condition. The advantage is less surgery, but the disadvantage is that unicompartment knee replacement may need revision surgery to a total knee surgery. Recent data shows that unicompartment replacement results with regard to outcomes and survival are approaching that for total knee arthroplasty. Robotic and computer navigation are improving the technical ability to accurately position of the unicompartment implants and theoretically improving the survivorship.

- **Total Knee Replacement (TKA)**
  Total knee replacement serves to replace all the damaged and arthritic joint surfaces with special metal and plastic, maintaining the remaining bone, tendon, and ligaments. It has very successful outcomes regarding pain relief and achieving functional motion.



Total knee replacement seen on X-ray